



**U.S. AIR FORCE**

# ***Headquarters U.S. Air Force***

---

## **Air Force Sustainability Update**



**U.S. AIR FORCE**

---

*Integrity - Service - Excellence*

Report Documentation Page				Form Approved OMB No. 0704-0188	
Public reporting burden for the collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to a penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.					
1. REPORT DATE <b>MAY 2009</b>		2. REPORT TYPE		3. DATES COVERED <b>00-00-2009 to 00-00-2009</b>	
4. TITLE AND SUBTITLE <b>Air Force Sustainability Update</b>				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S)				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) <b>Headquarters U.S. Air Force, 1690 Air Force Pentagon, Washington, DC, 20330-1670</b>				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION/AVAILABILITY STATEMENT <b>Approved for public release; distribution unlimited</b>					
13. SUPPLEMENTARY NOTES <b>Presented at the NDIA Environment, Energy Security &amp; Sustainability (E2S2) Symposium &amp; Exhibition held 4-7 May 2009 in Denver, CO.</b>					
14. ABSTRACT					
15. SUBJECT TERMS					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT <b>Same as Report (SAR)</b>	18. NUMBER OF PAGES <b>34</b>	19a. NAME OF RESPONSIBLE PERSON
a. REPORT <b>unclassified</b>	b. ABSTRACT <b>unclassified</b>	c. THIS PAGE <b>unclassified</b>			



**U.S. AIR FORCE**

---

# *Overview*

- **Air Force Accomplishments**
- **Challenges**
- **Incremental Steps**
- **Current Approach**
- **Enterprise Solution**
- **Sustainable Communities Rating System**
- **Leadership in Sustainable Communities**



# Air Force Success Stories

## U.S. AIR FORCE

### ■ Nellis AFB PV System

- Largest PV array in N. America

### ■ EPA Green Power Partnership

- Top federal agency for renewable energy (5%)

### ■ AF MILCON Program

- AF Weather Agency – 1<sup>st</sup> LEED Gold in the AF
- Keesler Housing – Largest LEED community in US homes

### ■ Natural Resources

- Solid Waste Diversion (2007) - 62%
- HAZWASTE disposal reduction (1996-present) – 33%
- Toxic Release Inventory reduction (2001-2006) – 34%
- Ozone Depleting Substance elimination (1990-present) – 96%
- Water Reduction (FY01-FY07) – 32%
- Green Remediation Technologies (50% are „green“)



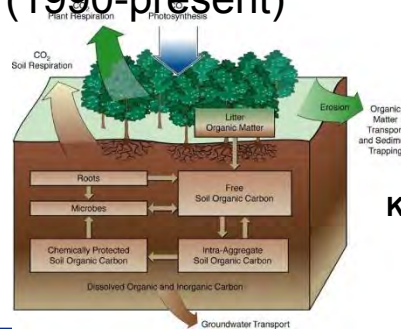
70,000 panels generate 25M KWh per year



AF Weather Agency – 1<sup>st</sup> LEED Gold



Keesler Housing (736 LEED Silver Homes)





**U.S. AIR FORCE**

---

# ***Challenges***

- **Easy wins already accomplished**
- **Individual building approach problematic**
- **Conflicting regulatory requirements**
- **Funding stovepipes still exist**



U.S. AIR FORCE

# ***Incremental Steps Toward Sustainability***

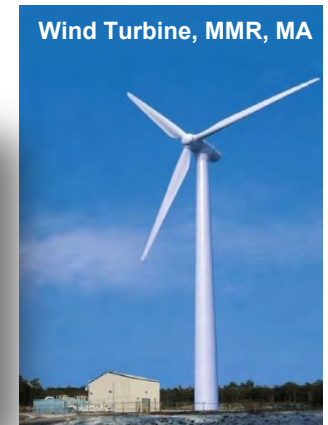
- **Energy/Green Procurement**
  - 100% participation in EnergyStar “Operation Change Out”
- **Sustainable Design and Development Policy**
- **Natural Resources**
  - **Sustainable Range Operations**
    - Engagement on encroachment
    - Range Residue Resource Recycling
  - AF Recycling Program
  - Alternative Fuels Initiative
- **Green Remediation**
  - Environmental Restoration Program Optimization (ERP-O)
  - Sustainable Remediation Tool



Wind Turbine, MMR, MA



Solar-powered in situ bioreactor, Travis AFB, CA





**U.S. AIR FORCE**

---

# ***Current Approach***

- **DoD existing building inventory: ~330,000**
  - **15% HPSB by 2015: ~49,500 buildings**
- **Survey every building**
  - **330,000 Buildings**
  - **Each building survey must incorporate approximately 30-90 data elements**
    - **Result: 9.9M-30M data elements**
- **No single survey in place for all Federal requirements – conflict/duplication**





U.S. AIR FORCE

# Enterprise Solution

- More holistic, comprehensive & synergistic methodology for sustainability
- Utilize an enterprise approach solution which
  - Integrates both the built and natural infrastructure
  - Incorporates sustainable principles in
    - Environmental Management System (EMS) and
    - Asset Management life-cycle planning
  - Facilitates continuous improvement
  - Enables enterprise acquisition
  - Institutionalizes sustainability cultural shift



***“Sustainable Communities”***







# ***Sustainable Communities***

**U.S. AIR FORCE**

---

- **Tri-Service proposes a Fence-to-Fence rating system**
  - **LEED-like scorecard**
  - **10 categories with requirements & credits under each**
  - **„CreditSheets“ identify requirements and how to comply**
- **Based on Asset Management and EMS**
  - **Each „credit“ mapped to Activity Management Plan**
  - **Continuous improvement process**
- **Proposed Categories:**

Planning	Built Infrastructure
Energy & Greenhouse Gas Emissions	Transportation
Water Efficiency	Human Health, Development & Productivity
Materials & Waste Management	Community Engagement
Natural Infrastructure	Innovation & Regional

---

***I n t e g r i t y - S e r v i c e - E x c e l l e n c e***



U.S. AIR FORCE

# *Leadership in Sustainable Communities (LSC)*

*LSC incorporates the mission, social and environmental impact into the business model.*



*Integrity - Service - Excellence*



**U.S. AIR FORCE**

---

# ***Conclusion***

- **Challenges are opportunities to create a paradigm shift**
  - **Incremental steps towards sustainability are suboptimal**
  - **Current approach to Federal Mandates – large data burden**
- **Enterprise Solution: *Sustainable Communities***
  - **Triple Bottom Line is incorporated into the structure of Sustainable Communities**
  - **Next Tri-Service Collaborative Group Sustainable Communities meeting 12 May 2009 – Wash DC**



**U.S. AIR FORCE**

# ***Related Briefings***

- **Green Remediation: Wed, 6 May 2009**
  - 8259
  - 8050
  - 8046
- **Environmental Program Management: Wed, 6 May**
  - 8047
- **Cleanup 2: Thurs, 7 May 2009**
  - 8079
  - 8103
  - 8349
- **Sustainability: Thurs, 7 May 2009**
  - 8051



**U.S. AIR FORCE**

# ***Headquarters U.S. Air Force***

---

**Questions?**



**U.S. AIR FORCE**

---

*Integrity - Service - Excellence*



**U.S. AIR FORCE**

# ***Headquarters U.S. Air Force***

---

## **Backups**



**U.S. AIR FORCE**

---

*Integrity - Service - Excellence*



# ***Sustainable Communities***

**U.S. AIR FORCE**

---

- 75% of the HPSB requirements are installation wide
- Tri-Service Collaborative Group proposes a single streamlined approach
- USGBC, DOE and EPA in advisory roles
- Fence-to-Fence Tri-Service structured rating system
  - LEED-like scorecard
  - 10 categories with requirements & credits under each
  - „Credit Sheets“ identify requirements and how to comply
- Based on Asset Management and EMS
  - Each „credit“ mapped to Activity Management Plan
  - Continuous improvement process

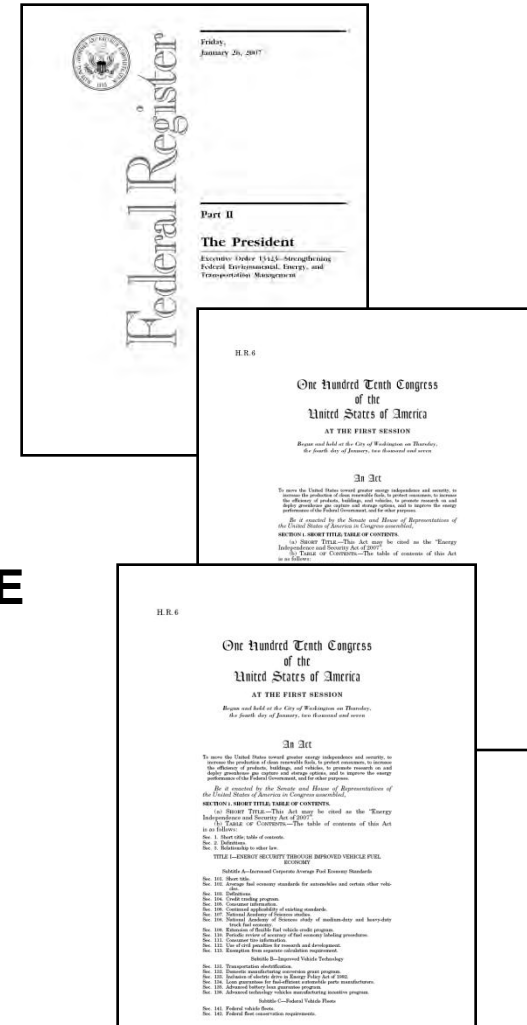




**U.S. AIR FORCE**

# Challenges

- **Executive Order (EO) 13423**
  - Reduce Energy Consumption 30% by 2015
  - Reduce Water use 20% by 2015
  - Green Procurement
  - Hazardous material and waste reductions
  - 15% High Performance/Sustainable Buildings by 2015
- **Energy Policy Act of 2005 (EPAct05)**
  - Building shall be 30% more efficient than ASHRAE 90.1
  - Use advanced meters
- **Energy Independence and Security Act of 2007 (EISA07)**
  - Buildings reduce fossil fuel consumption
    - 55% by 2010; 100% by 2030
  - Restore predevelopment hydrology





# ***AF LEED Buildings Honor Roll***

**U.S. AIR FORCE**

---



---

***Integrity - Service - Excellence***



U.S. AIR FORCE

# *Sustainable Design and Development*

## **Leadership in Energy & Environmental Design**



**Does LEED = *Green*?**





**U.S. AIR FORCE**

# ***LEED Pitfalls***



## **Charging Station?**



U.S. AIR FORCE

# *What Makes Sense*





**U.S. AIR FORCE**

# ***LEED Pitfalls***



## **Match material performance with requirements**

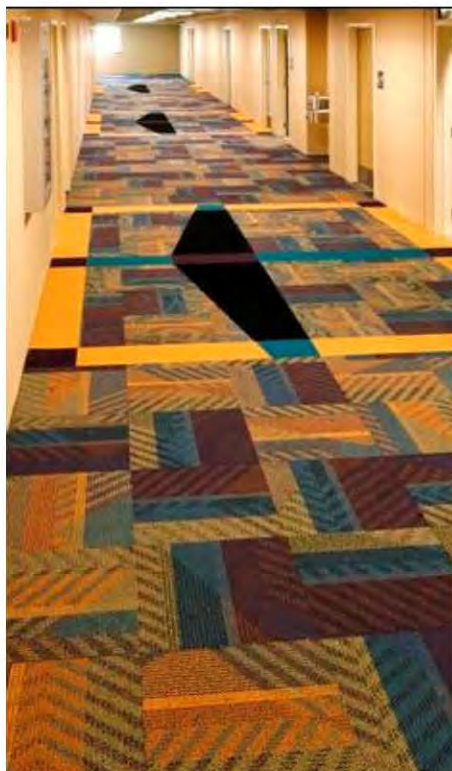
*Integrity - Service - Excellence*





U.S. AIR FORCE

# Proper Material Selection



IN THIS SECTION

WHAT IS SUSTAINABILITY?

OUR JOURNEY

PROGRESS TO ZERO

SUSTAINABLE LIFE ACTION

COMMUNITY & SOCIAL RESPONSIBILITY

STAKEHOLDERS & IMPACT

NEWS & ARTICLES

INTERACTIVE

10-PRINCIPLES OF SUSTAINABILITY

## Toward a More Sustainable Way of Business

Business and industry developed in a different world from the one we live in today. Former products, processes and technologies, built for a more resource-rich world, emerged as a highly inefficient, resource-intensive system that now uses finite resources, with little to no thought given to its impact. Today, that system no longer enhances our prosperity; instead, it is endangering it. When it is faced with itself as part of the system and the solution problem, we begin a journey in a different capacity, toward sustainability.

The 10 principles guiding forward sustainable development have been a more difficult to integrate our business and meet the world. Since then, these principles have become a vision, not just a journey, that is marked by innovation, as we completely reimagined and redesigned our way of doing business, building the most sustainable world for our future business. You will find the 10 principles with accompanying and advice on our journey, and learn how we actually measure our progress. We believe the 10 principles journey can be a model for business in the next industrial revolution.

DESIGN SUSTAINABILITY

includes

## Achieving Mission Zero™

Mission Zero is a commitment to sustainability that goes beyond the corporate social responsibility (CSR) to ensure that our business has no net negative impact on the environment by 2025.

### A Model, Vision and Measurement as Guide

The 10 principles model for sustainable business has emerged, not just a journey, but a vision and a path of business that drive innovation and design our way of doing business. As we do the model, we will be working on a set of metrics to measure, making it a model to realize it, developed the 10 principles model, and our 10 principles measurements, called "Sustainable" to monitor progress and keep us on our journey path. Learn more about the 10 PRINCIPLES OF SUSTAINABILITY.





U.S. AIR FORCE

# LEED Pitfalls



***Essential:*** Proper design and maintenance  
personnel buy-in



**U.S. AIR FORCE**

# *Another Approach*





**U.S. AIR FORCE**

# ***AF LEED Certified Honor Roll***



## **AF Weather Agency**

- LEED Gold
- 41 LEED Points



## **Keesler Housing**

- 736 Homes LEED Silver
- All 1028 EnergyStar Rated
- Largest residential transfer in US





U.S. AIR FORCE

# Air Force Sustainable Policy for New Facilities

- Current policy issued July 07
- Key requirements
  - All MILCON vertical facilities shall be *capable of achieving LEED "Silver"*
  - Incorporates EPA05 and EO 13423 requirements
  - FY09: 5% of total MILCON LEED certified
  - FY10/later: 10% LEED certified
- Policy currently in re-write

ATTACHMENT 1  
LEED<sup>®</sup> NC, v2.2 Project Checklist

LEED-NC v2.2 Sustainable Sites	10 Possible Points
SS Credit 1: Construction Activity Pollution Prevention	Required
SS Credit 2: Site Selection	1
SS Credit 3: Sustainable Development	1
SS Credit 4: Alternative Transportation: Public Transportation Access	1
SS Credit 5: Alternative Transportation: Bicycle Storage & Changing Room	1
SS Credit 6: Alternative Transportation: Low-Speed & Fuel Efficient	1
SS Credit 7: Alternative Transportation: Parking Capacity	1
SS Credit 8: Site Development: Protect or Restore Habitat	1
SS Credit 9: Site Development: Maximize Open Space	1
SS Credit 10: Stormwater Design: Quantity Control	1
SS Credit 11: Stormwater Design: Quality Control	1
SS Credit 12: Heat Island Effect: Non-Roof	1
SS Credit 13: Heat Island Effect: Roof	1
SS Credit 14: Light Pollution Reduction	1
Water Efficiency	8 Possible Points
WE Credit 1.1: Water Efficient Landscaping: Reduce by 50%	1
WE Credit 1.2: Water Efficient Landscaping: No Potable Water Use	1
WE Credit 2: Innovative Wateruse: Technologies	1
WE Credit 3.1: Water Use Reduction: 30% Reduction	1
WE Credit 3.2: Water Use Reduction: 40% Reduction	1
Energy & Atmosphere	17 Possible Points
EA Credit 1: Fundamentals: Commissioning of the Building Energy Systems	Required
EA Credit 2: Minimum Energy Performance	Required
EA Credit 3: Water-Energy Performance	1
EA Credit 4: On-Site Renewable Energy	1-4
EA Credit 5: Enhanced Commissioning	1
EA Credit 6: Enhanced Energy Performance	1
EA Credit 7: Measurement & Verification	1
EA Credit 8: Green Power	1
Materials & Resources	12 Possible Points
MR Credit 1: Recycling & Collection of Recyclables	Required
MR Credit 2.1: High-Rise: Minimum 75% of Existing Walls, Floor, Roof	1
MR Credit 2.2: High-Rise: Minimum 75% of Existing Walls, Floor, Roof	1
MR Credit 3.1: High-Rise: Minimum 75% of Existing Walls, Floor, Roof	1
MR Credit 3.2: High-Rise: Minimum 75% of Existing Walls, Floor, Roof	1
MR Credit 4: Construction Waste Management: Divert 75% from Disposal	1
MR Credit 5: Construction Waste Management: Divert 75% from Disposal	1
MR Credit 6: Materials Waste: 50%	1
MR Credit 7: Materials Waste: 50%	1
MR Credit 8: Recycled Content: 20% (post-consumer + 1% pre-consumer)	1
MR Credit 9: Recycled Content: 20% (post-consumer + 1% pre-consumer)	1
MR Credit 10: Regional Materials: 10% Extracted, Processed & Manufactured Regionally	1
MR Credit 11: Regional Materials: 10% Extracted, Processed & Manufactured Regionally	1
MR Credit 12: Regional Materials: 10% Extracted, Processed & Manufactured Regionally	1
MR Credit 13: Regional Materials: 10% Extracted, Processed & Manufactured Regionally	1
MR Credit 14: Regional Materials: 10% Extracted, Processed & Manufactured Regionally	1
MR Credit 15: Regional Materials: 10% Extracted, Processed & Manufactured Regionally	1
MR Credit 16: Regional Materials: 10% Extracted, Processed & Manufactured Regionally	1
MR Credit 17: Regional Materials: 10% Extracted, Processed & Manufactured Regionally	1
MR Credit 18: Regional Materials: 10% Extracted, Processed & Manufactured Regionally	1
MR Credit 19: Regional Materials: 10% Extracted, Processed & Manufactured Regionally	1
MR Credit 20: Regional Materials: 10% Extracted, Processed & Manufactured Regionally	1
MR Credit 21: Regional Materials: 10% Extracted, Processed & Manufactured Regionally	1
MR Credit 22: Regional Materials: 10% Extracted, Processed & Manufactured Regionally	1
MR Credit 23: Regional Materials: 10% Extracted, Processed & Manufactured Regionally	1
MR Credit 24: Regional Materials: 10% Extracted, Processed & Manufactured Regionally	1
MR Credit 25: Regional Materials: 10% Extracted, Processed & Manufactured Regionally	1
MR Credit 26: Regional Materials: 10% Extracted, Processed & Manufactured Regionally	1
MR Credit 27: Regional Materials: 10% Extracted, Processed & Manufactured Regionally	1
MR Credit 28: Regional Materials: 10% Extracted, Processed & Manufactured Regionally	1
MR Credit 29: Regional Materials: 10% Extracted, Processed & Manufactured Regionally	1
MR Credit 30: Regional Materials: 10% Extracted, Processed & Manufactured Regionally	1
MR Credit 31: Regional Materials: 10% Extracted, Processed & Manufactured Regionally	1
MR Credit 32: Regional Materials: 10% Extracted, Processed & Manufactured Regionally	1
MR Credit 33: Regional Materials: 10% Extracted, Processed & Manufactured Regionally	1
MR Credit 34: Regional Materials: 10% Extracted, Processed & Manufactured Regionally	1
MR Credit 35: Regional Materials: 10% Extracted, Processed & Manufactured Regionally	1
MR Credit 36: Regional Materials: 10% Extracted, Processed & Manufactured Regionally	1
MR Credit 37: Regional Materials: 10% Extracted, Processed & Manufactured Regionally	1
MR Credit 38: Regional Materials: 10% Extracted, Processed & Manufactured Regionally	1
MR Credit 39: Regional Materials: 10% Extracted, Processed & Manufactured Regionally	1
MR Credit 40: Regional Materials: 10% Extracted, Processed & Manufactured Regionally	1
MR Credit 41: Regional Materials: 10% Extracted, Processed & Manufactured Regionally	1
MR Credit 42: Regional Materials: 10% Extracted, Processed & Manufactured Regionally	1
MR Credit 43: Regional Materials: 10% Extracted, Processed & Manufactured Regionally	1
MR Credit 44: Regional Materials: 10% Extracted, Processed & Manufactured Regionally	1
MR Credit 45: Regional Materials: 10% Extracted, Processed & Manufactured Regionally	1
MR Credit 46: Regional Materials: 10% Extracted, Processed & Manufactured Regionally	1
MR Credit 47: Regional Materials: 10% Extracted, Processed & Manufactured Regionally	1
MR Credit 48: Regional Materials: 10% Extracted, Processed & Manufactured Regionally	1
MR Credit 49: Regional Materials: 10% Extracted, Processed & Manufactured Regionally	1
MR Credit 50: Regional Materials: 10% Extracted, Processed & Manufactured Regionally	1
MR Credit 51: Regional Materials: 10% Extracted, Processed & Manufactured Regionally	1
MR Credit 52: Regional Materials: 10% Extracted, Processed & Manufactured Regionally	1
MR Credit 53: Regional Materials: 10% Extracted, Processed & Manufactured Regionally	1
MR Credit 54: Regional Materials: 10% Extracted, Processed & Manufactured Regionally	1
MR Credit 55: Regional Materials: 10% Extracted, Processed & Manufactured Regionally	1
MR Credit 56: Regional Materials: 10% Extracted, Processed & Manufactured Regionally	1
MR Credit 57: Regional Materials: 10% Extracted, Processed & Manufactured Regionally	1
MR Credit 58: Regional Materials: 10% Extracted, Processed & Manufactured Regionally	1
MR Credit 59: Regional Materials: 10% Extracted, Processed & Manufactured Regionally	1
MR Credit 60: Regional Materials: 10% Extracted, Processed & Manufactured Regionally	1
MR Credit 61: Regional Materials: 10% Extracted, Processed & Manufactured Regionally	1
MR Credit 62: Regional Materials: 10% Extracted, Processed & Manufactured Regionally	1
MR Credit 63: Regional Materials: 10% Extracted, Processed & Manufactured Regionally	1
MR Credit 64: Regional Materials: 10% Extracted, Processed & Manufactured Regionally	1
MR Credit 65: Regional Materials: 10% Extracted, Processed & Manufactured Regionally	1
MR Credit 66: Regional Materials: 10% Extracted, Processed & Manufactured Regionally	1
MR Credit 67: Regional Materials: 10% Extracted, Processed & Manufactured Regionally	1
MR Credit 68: Regional Materials: 10% Extracted, Processed & Manufactured Regionally	1
MR Credit 69: Regional Materials: 10% Extracted, Processed & Manufactured Regionally	1
MR Credit 70: Regional Materials: 10% Extracted, Processed & Manufactured Regionally	1
MR Credit 71: Regional Materials: 10% Extracted, Processed & Manufactured Regionally	1
MR Credit 72: Regional Materials: 10% Extracted, Processed & Manufactured Regionally	1
MR Credit 73: Regional Materials: 10% Extracted, Processed & Manufactured Regionally	1
MR Credit 74: Regional Materials: 10% Extracted, Processed & Manufactured Regionally	1
MR Credit 75: Regional Materials: 10% Extracted, Processed & Manufactured Regionally	1
MR Credit 76: Regional Materials: 10% Extracted, Processed & Manufactured Regionally	1
MR Credit 77: Regional Materials: 10% Extracted, Processed & Manufactured Regionally	1
MR Credit 78: Regional Materials: 10% Extracted, Processed & Manufactured Regionally	1
MR Credit 79: Regional Materials: 10% Extracted, Processed & Manufactured Regionally	1
MR Credit 80: Regional Materials: 10% Extracted, Processed & Manufactured Regionally	1
MR Credit 81: Regional Materials: 10% Extracted, Processed & Manufactured Regionally	1
MR Credit 82: Regional Materials: 10% Extracted, Processed & Manufactured Regionally	1
MR Credit 83: Regional Materials: 10% Extracted, Processed & Manufactured Regionally	1
MR Credit 84: Regional Materials: 10% Extracted, Processed & Manufactured Regionally	1
MR Credit 85: Regional Materials: 10% Extracted, Processed & Manufactured Regionally	1
MR Credit 86: Regional Materials: 10% Extracted, Processed & Manufactured Regionally	1
MR Credit 87: Regional Materials: 10% Extracted, Processed & Manufactured Regionally	1
MR Credit 88: Regional Materials: 10% Extracted, Processed & Manufactured Regionally	1
MR Credit 89: Regional Materials: 10% Extracted, Processed & Manufactured Regionally	1
MR Credit 90: Regional Materials: 10% Extracted, Processed & Manufactured Regionally	1
MR Credit 91: Regional Materials: 10% Extracted, Processed & Manufactured Regionally	1
MR Credit 92: Regional Materials: 10% Extracted, Processed & Manufactured Regionally	1
MR Credit 93: Regional Materials: 10% Extracted, Processed & Manufactured Regionally	1
MR Credit 94: Regional Materials: 10% Extracted, Processed & Manufactured Regionally	1
MR Credit 95: Regional Materials: 10% Extracted, Processed & Manufactured Regionally	1
MR Credit 96: Regional Materials: 10% Extracted, Processed & Manufactured Regionally	1
MR Credit 97: Regional Materials: 10% Extracted, Processed & Manufactured Regionally	1
MR Credit 98: Regional Materials: 10% Extracted, Processed & Manufactured Regionally	1
MR Credit 99: Regional Materials: 10% Extracted, Processed & Manufactured Regionally	1
MR Credit 100: Regional Materials: 10% Extracted, Processed & Manufactured Regionally	1



U.S. AIR FORCE

# ***Sustainability Requirements for Existing Facilities***

---

- **Current Federal requirement are single facility-based**
- **Requires multiple surveys to comply with all installation sustainable requirements**
- **No standard method for reporting**



---

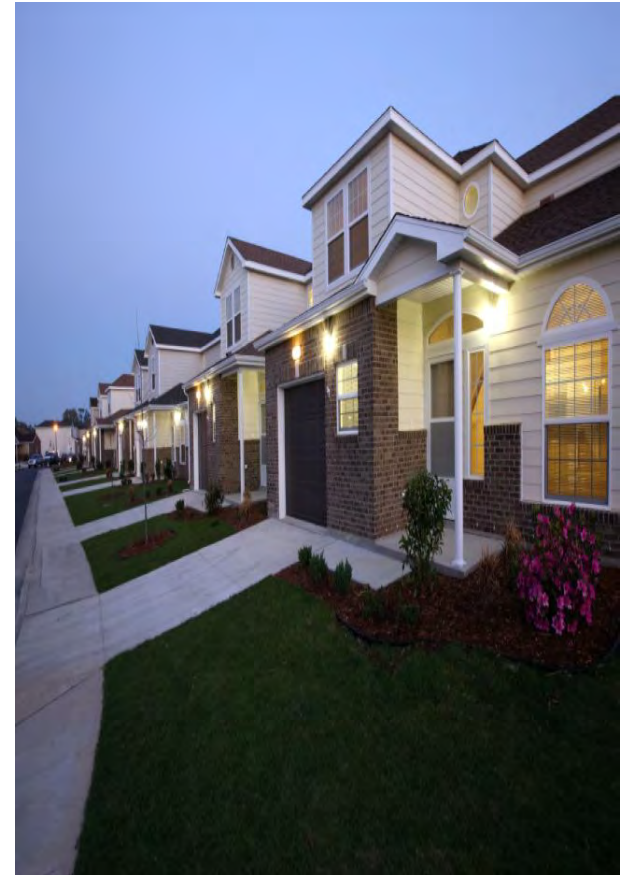
*Integrity - Service - Excellence*



U.S. AIR FORCE

# ***Option B: Sustainable Communities***

- **Tri-Service Collaborate Group proposes a single streamlined approach**
- **USGBC, DOE, and EPA in advisory roles**
- **Holistic sustainable rating system**
  - **Includes energy and water requirements**
  - **Measures/Reports compliance**
  - **Reflects all aspects of the installation**





**U.S. AIR FORCE**

# ***Option B: Sustainable Communities***

---

- **Installation-wide rating system**
  - **Reduced data collection**
  - **Streamline reporting requirements**
  - **Enable enterprise acquisition strategies**
  - **Comprehensive & synergistic methodology**
  - **More holistic methodology for sustainability**
  - **Facilitate continuous improvement**
- **Approximately 75% of the HPSB requirements are installation-wide**





# Proposed Scorecard Snapshot

U.S. AIR FORCE

## Sustainable Communities Scorecard

Installation Name:

Location:

Yes ? No

				Planning (P)	X Points
				Req 1 EMS Conformance	Required
				Req 2 Environmental Performance Scorecard	Required
				Credit 1 Asset Inventory	
				Credit 2 Long Term Environmental Liability Assessment (Air, Land, Restoration)	
				Credit 3 Sustainable Investment Planning Process	
				Credit 4 Local / Regional Business Support	
				Credit 5 Regional Political Coordination Process (around the fenceline)	
				Credit 6 Land Use	
				Credit 7 Brownfield Development Incentive	
				Credit 8 Circulation / Connection	
				Credit 9 Light & Air	
				Credit 10 Climate Appropriate Design	
				Credit 13 Air Installation Compatible Use Zone Program (AICUZ)	
				Credit 14 Base Comprehensive Planning	
				Credit 15 Development Density	
				Credit 16 On-base Housing and Dormitories	
				Credit 17 Mixed Use Development	
				Credit 18 Facility Utilization and Optimization	

*Integrity - Service - Excellence*



# Proposed Credit Snapshots

U.S. AIR FORCE

## EMS Conformance

P	EG	WE	MW	NI
BI	T	HDP	CE	IR
Requirement 1				

### Intent

Compliance – must meet federal requirements listed below.

### Requirements

- Federal Requirement:
  - EO13423, (-)
  - DODI xxxx.xx
- Service Requirements
  - Army:
  - Navy:
  - Air Force: AFI XX-XXXX

### Submittals Documentation

The submittals will be a list of specific data that should be gathered into a database.

\*The intention is that this reference workbook will be used as a scope document for a database designer. The designer will create a database and a web based tool for filling in the information required by the submittals. They do not want yes/no questions and checkmarks. They want for real data to be entered, such as quantities, percentages, etc.

### Potential Technologies & Strategies

Not completing this section until after the Tri Service meeting in May

Asset Management Key:

Army: Navy: Air Force: NI

## GHG Emissions Benchmark and Tracking

P	EG	WE	MW	NI
BI	T	HDP	CE	IR
Requirement 1				

### Intent

Compliance – must meet federal requirements listed below.

### Requirements

- Federal Requirement:
  - EO13423, (-)
  - DODI xxxx.xx
- Service Requirements
  - Army:
  - Navy:
  - Air Force: AFI XX-XXXX

### Submittals Documentation

The submittals will be a list of specific data that should be gathered into a database.

\*The intention is that this reference workbook will be used as a scope document for a database designer. The designer will create a database and a web based tool for filling in the information required by the submittals. They do not want yes/no questions and checkmarks. They want for real data to be entered, such as quantities, percentages, etc.

### Potential Technologies & Strategies

Not completing this section until after the Tri Service meeting in May

Asset Management Key:

Army: Navy: Air Force: NI



**U.S. AIR FORCE**

---

# ***Way Ahead***

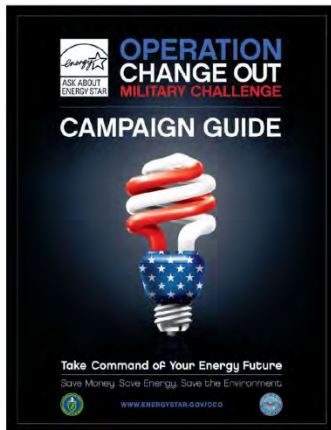
- **Define credits and requirements**
  - **Reduce data acquisition**
  - **Streamline reporting requirements**
- **Identify a scoring methodology**
- **Develop business strategy**
  - **Tie score to investment strategies**
  - **Prioritize projects considering triple bottom line**
  - **Complements Asset Management approach**



**U.S. AIR FORCE**

---

- **100% participation in EnergyStar “Operation Change Out”**





**U.S. AIR FORCE**

# ***Renewable Energy***

- **Air Force leads renewable energy initiative**
  - **Largest PV system in N. America**
    - **Nellis AFB**
  - **Purchasing renewable energy**
    - **Rated top federal agency**
    - **Rated #8 nationally – over 426M KWh**
  - **Installations pursuing local renewable resources**
    - **Dyess AFB – 100% wind power**
    - **Fairchild AFB – 100% green power**
    - **Edwards AFB – 60% green power**
    - **Ascension Island – x% wind power**
  - **100% participation in EnergyStar „Operation Change Out“**





**U.S. AIR FORCE**

---

# ***Going “Green”***

## **■ “Green Remediation”**

- Focus on working with and leveraging Mother Nature**
- 50% of current remediation systems are “green”**
  - Phytoremediation – utilizing tree root structure to remediate**
  - Bioaugmentation – groundwater stimulation of dechlorination**
  - Wetlands & Biowalls**
  - Solar Powered Systems**

## **■ Kevin Section**